

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An apparatus for controlling a data write operation in an optical storage system comprising:

an operational amplifier having a positive input end, a negative input end and an output end for outputting a write-control signal at the output end, the operational amplifier being operated in one of a short-term mode, a long-term mode and a closed-loop mode;

a first gain amplifier for amplifying an input signal on its input end;

a second gain amplifier for amplifying an input signal on its input end;

a first switch having a first end connected to an output end of the first gain amplifier;

a second switch connected to the output end of the operational amplifier and the negative input end of the operational amplifier;

a third switch having a first end coupled to the first switch and a second end connected to the negative input end of the operational amplifier;

a fourth switch for coupling the output signal of the second gain amplifier to the positive input end of the operational amplifier;

a fifth switch having a first end connected to the first switch and a second end connected to the fourth switch;

a sixth switch for coupling a DAC signal or a ground signal to the fourth switch and fifth switch; and

a seventh switch for coupling the DAC signal or the output of the operational amplifier to an input end of the second gain amplifier;  
wherein

in the short-term mode, the operational amplifier is formed as a voltage follower for initializing the write-control signal;

in the long-term mode, the operational amplifier charges the write-control signal, the output end of the operational amplifier is coupled to the negative input end thereof and the positive input end of the operational amplifier is coupled to a voltage level used for recording data onto a compact disk for charging the write-control signal such that the positive input end and the negative input end of the operational amplifier are virtually grounded; and

in the closed-loop mode, the charged write-control signal is employed to record data on a CD.

2. (original) The apparatus for controlling a data write operation in an optical storage system as claimed in claim 1, wherein in the short-term mode, the positive input end of the operational amplifier is coupled to a reference voltage, and the negative input end thereof is coupled to the output end for forming a voltage follower so as to initialize the write-control signal.

3. (cancelled)

4. (cancelled)

5. (previously presented) The apparatus for controlling a data write operation in an optical storage system as claimed in claim 2, wherein in the long-term mode, the operational amplifier charges the write-control signal to the voltage level used for recording data onto the compact disk.

6. (original) The apparatus for controlling a data write operation in an optical storage system as claimed in claim 1, wherein in the closed-loop mode, the operational amplifier inputs a feedback control signal from a read/write head of the apparatus and the feedback control signal is amplified and fed back to the negative input end of the operational amplifier.

7. (currently amended) The apparatus for controlling a data write operation in an optical storage system as claimed in claim [[4]] 6, further comprising a sampling and holding circuit and a gain amplifier, in which the sampling and holding circuit receives the feedback control signal and the feedback control signal is amplified by the gain amplifier, and the feedback control signal is amplified before being sent to the negative input end of the operational amplifier.

8. (original) The apparatus for controlling a data write operation in an optical storage system as claimed in claim 1, wherein when the writing operation is completed, the short-term mode is actuated again so as to initialize the write-control signal again.

9. (currently amended) A method for controlling a data write operation in an optical storage system including an operational amplifier having a positive input end, a negative input end and an output end for outputting a write-control signal at the output end, the operational amplifier being operated in one of a short-term mode,

a long-term mode and a closed-loop mode; [[,]] a first gain amplifier for amplifying an input signal on its input end; a second gain amplifier for amplifying an input signal on its input end; a first switch having a first end connected to an output end of the first gain amplifier; a second switch connected to the output end of the operational amplifier and the negative input end of the operational amplifier; a third switch having a first end coupled to the first switch and a second end connected to the negative input end of the operational amplifier; a fourth switch for coupling the output signal of the second gain amplifier to the positive input end of the operational amplifier; a fifth switch having a first end connected to the first switch and a second end connected to the fourth switch; a sixth switch for coupling a DAC signal or a ground signal to the fourth switch and fifth switch; and a seventh switch for coupling the DAC signal or the output of the operational amplifier to an input end of the second gain amplifier; the method comprising the steps of:

executing the short-term mode for initializing a write-control signal by using virtually grounding effect;

executing the long-term mode for charging the write-control signal by using virtually grounding effect, with which the output end of the operational amplifier is coupled to the negative input end thereof and the positive input end of the operational amplifier is coupled to a voltage level used for recording data onto a compact disk for charging the write-control signal such that the positive input end and the negative input end of the operational amplifier are virtually grounded; and

executing the closed-loop mode for employing the charged write-control signal for recording data onto a compact disk.

10. (currently amended) The method for controlling a data write operation in an optical storage system as claimed in claim [[7]] 9, further comprising a step of initializing the write-control signal within the short-term mode.

11. (currently amended) The method for controlling a data write operation in an optical storage system as claimed in claim [[7]] 9, further comprising a step of using a digital to analog control signal to control the charging operation of the write-control signal.

12. (original) The method for controlling a data write operation in an optical storage system as claimed in claim 9, wherein in the closed-loop mode, the write-control signal is used for controlling the recording operation.

13. (currently amended) The method for controlling a data write operation in an optical storage system as claimed in claim [[7]] 9, further comprising a step of re-executing the long-term mode after the recording operation for re-initializing the write-control signal.

14. (currently amended) The method for controlling a data write operation in an optical storage system as claimed in claim [[7]] 9, further comprising a step of using a first time period control signal, a second time period control signal and a third time period control signal for controlling the operational amplifier to be operated in the short-term mode, the long-term mode and the closed-loop mode, in which the first and second time period control signals are switched between a first level and a second level.

15. (currently amended) A read/write device used in an optical storage system comprising:

a read-control device for generating a read-control signal in response to a feedback control signal;

a write-control device having an operational amplifier for generating a write-control signal in response to the feedback control signal; a first gain amplifier for amplifying an input signal on its input end; a second gain amplifier for amplifying an input signal on its input end; a first switch having a first end connected to an output end of the first gain amplifier; a second switch connected to the output end of the operational amplifier and the negative input end of the operational amplifier; a third switch having a first end coupled to the first switch and a second end connected to the negative input end of the operational amplifier; a fourth switch for coupling the output signal of the second gain amplifier to the positive input end of the operational amplifier; a fifth switch having a first end connected to the first switch and a second end connected to the fourth switch; a sixth switch for coupling a DAC signal or a ground signal to the fourth switch and fifth switch; and a seventh switch for coupling the DAC signal or the output of the operational amplifier to an input end of the second gain amplifier, wherein the operational amplifier is formed as a voltage follower for initializing the write-control signal when being operated in a short-term mode; the operational amplifier charges the write-control signal in advance when being operated in a long-term mode; the output end of the operational amplifier is coupled to the negative input end thereof and the positive input end of the operational amplifier inputs a voltage used for

recording data onto the compact disk for charging the write-control signal to a voltage level for writing data to the compact disk such that the positive input end and the negative input end of the operational amplifier are virtually grounded; the charged write-control signal is used to control an operation of recording data onto a compact disk when the operational amplifier is operated in a closed-loop mode; and

a read/write head for generating a laser beam in response to the read-control signals, the write-control signals, a read-enable signal, and a write-enable signal, wherein the read/write head generates a feedback signal based on the laser beam for being fed back to the read-control device and the write-control device.

16. (currently amended) The read/write device as claimed in claim ~~13~~ 15, wherein the operational amplifier has a positive input end, a negative input end and an output end, and the output end of the operational amplifier serves for outputting the write-control signal.

17. (currently amended) The read/write device as claimed in claim ~~14~~ 16, wherein in the short-term mode, the positive input end of the operational amplifier is coupled to a reference voltage, and the negative input end thereof is coupled to the output end for forming a voltage follower so as to initialize the write-control signal.

18. (cancelled)

19. (cancelled)

20. (currently amended) The read/write device as claimed in claim ~~14~~ 16, wherein in the closed-loop mode, the operational amplifier reads a feedback control signal from the read/write head of the write control

device and the feedback control signal is amplified and fed back to the negative input end of the operational amplifier.

21. (currently amended) The read/write device as claimed in claim ~~1620~~, further comprising: a sampling and holding circuit ~~and a gain amplifier~~, wherein the sampling and holding circuit receives the feedback control signal and the gain amplifier amplifies the feedback control signal and sends the amplified feedback control signal to the negative input end of the operational amplifier.

22. (currently amended) The read/write device as claimed in claim ~~1315~~, wherein the long-term mode is executed again after the writing operation for re-initializing the write-control signal.